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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/590,657	06/07/2000	Bart J. Bombay	59.0027	9534

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EXAMINER

YEH, EDITH M

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 07/23/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

B

Office Action Summary

Application No.

09/590,657

Applicant(s)

BOMBAY ET AL.

Examiner

Edith M Yeh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8, 9, 12-14 and 16-18 is/are rejected.
- 7) ☒ Claim(s) 7, 10, 11, 15, 19 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 June 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3, 4, 5, 6 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims.

Therefore, *the first receive circuitry, the second receive circuitry, and the adaptive far-end cross-talk cancellation circuitry of the receiver* cited in the claim 1 must be shown in *the receiver* or the feature(s) canceled from the claim(s). No new matter should be entered.

The first propagation mode cross-talk adjustment circuit of the adaptive far-end cross-talk cancellation circuitry cited in the claim 2 must be shown in *the adaptive far-end cross-talk cancellation circuitry* or the feature(s) canceled from the claim(s). No new matter should be entered.

The slice residual determination logic, and the cross-talk parameter update logic of the far-end adaptive cross-talk cancellation circuitry cited in the claim 3 must be shown in *the far-end cross-talk cancellation circuitry* or the feature(s) canceled from the claim(s). No new matter should be entered.

The slice determination logic and the coefficient update logic cited in **claim 9** must be shown in *the telemetry system* or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 7 is objected to because of the following informalities: The “RMS” in line 9 page 23 has to spell out as it shown as abbreviation first time in the claims. Appropriate correction is required.

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3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gardner et al. (US Patent 5387907) in view of Lyon et al. (US Patent 5838727).

Regarding **claim 1**, except the propagation mode, Gardner et al. discloses all subject matter: a digital telemetry system (Fig.1 '907) having improved data rate and robustness, comprising: a data transmission cable having a first end and a second end (11 Fig.1 '907), and capable of transmitting data on at least two channels (21-22 & 24 Fig.6; column 8 lines 5-55 wherein power, commands, and data are transmitted in different channels '907); a data source connected at the first end and having data transmission circuitry to generate data signals (14 Fig.1, Fig.8) on the at least two channels; a receiver connected to the second end (28 Fig.1), and having a first receive circuitry (101 Fig.9) to receive signals on a first of the at least two channels; a second receive circuitry (129 Fig.9) to receive signals on a second of the at least two channels; an adaptive far-end cross-talk cancellation circuitry (106 Fig.9) connected to the first receive circuitry and to the second receive circuitry, *however* does not specify the propagation modes (the different combination of cable seven conductors) to form the channels. Lyon et al. teaches the propagation mode (FIG.9; column 12 line 66-column 13 line 10 '727). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the propagation modes to form the channels taught by Lyon et al. in Gardner et al.'s system to have higher data transmission rate.

5. Claims 2-6, 8-9, 12-14, 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gardner et al. (US Patent 5387907) in view of Lyon et al. (US Patent 5838727), further in view of Cioffi (US Patent 5887032) and Gardner et al. (US Patent 5010333).

Regarding **claim 2**, inhering the limitation of claim 1, Gardner et al. does not specify the first propagation mode cross-talk adjustment circuit adjusting the samples on the first propagation mode by values that are a function of the samples of the second propagation mode, however Coiffi teaches the crosstalk cancellation that removes crosstalk interference from received signals on a given line by estimating the interference induced by other lines and using the estimation to cancellate the crosstalk (Abstract; FIG. 7 & 8). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the crosstalk cancellation taught by Coiffi in Gardner et al.'s filter equalizer to reduce the crosstalk as cited in the claim.

Regarding **claims 3, 13, & 18**, further Gardner et al. ('333) discloses the cross-talk cancellation method and its circuitry further comprising: a slice residual determination logic determining the slice residual between the output and an ideal point (column 17 line 1-5 '333) connected to the output of the cross-talk adjustment circuit (96 FIG. 10 '333); a cross-talk parameter update logic (95 FIG. 10 '333) connected to receive the slice residual from the slice determination logic and connected to the cross-talk adjustment circuit to adjusting a function used to determine the cross-talk component as a function of the slice residual/adjusting the coefficients as function of the slice residual (FIG. 10; column 15 line 65-column 16 line 5 '333).

Regarding **claim 4**, Gardner et al. ('907) discloses the cross-talk cancellation circuitry accepts as input one value on each of a plurality of carriers and computes the cross-talk component for each carrier (101, 129 Fig. 9).

Regarding **claims 5 & 14**, further Coiffi teaches the cross-talk cancellation method and its circuitry computes the cross-talk component for each carrier by multiplying the signal received on the second propagation mode by a carrier specific coefficient (704, 706 FIG. 7).

Regarding **claim 6**, Gardner et al. teaches the cross-talk parameter update logic updates each carrier specific coefficient as a function of the slice residual on such carrier (FIG. 10 '333, Fig. 9 '907).

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Regarding **claims 8 & 9**, Gardner et al. ('333) teaches the cross-talk adjustment circuit receives m samples from the second receive circuitry and convolves these using m coefficients (93s & 95s FIG.10 '333) and the slice determination logic and coefficient update logic wherein the m coefficients are adjusted as a function of a slice residual determined by the slice determination logic (93-96 FIG.10).

Regarding **claims 12 & 16**, Gardner et al. ('907) teaches all subject matter claimed: inputting a first sample on a first propagation mode (101 Fig.9); inputting a second sample on a second propagation mode (129 Fig.9); determining a cross-talk component from/by convolving the second sample (FIG.10; column 15 line 65-column 16 line 1-5 '333); except the determining an output by subtracting the cross-talk component from the first sample. However Cioffi teaches the crosstalk cancellation of the determining an output by subtracting the cross-talk component from the first sample (Abstract; FIG.7 '032). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the crosstalk cancellation taught by Coiffi in Gardner et al.'s filter equalizer to reduce the crosstalk.

Regarding **claim 17**, Gardner et al. ('333) discloses the convolving comprising multiplying each sample in the first second set of samples by a coefficient (FIG.7 & 10; column 15 line 65-column 16 line 1-5 '333).

Allowable Subject Matter

Claims 7, 10-11, 15, 19-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M Yeh whose telephone number is 703-305-3416. The examiner can normally be reached on M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4800.

Edith Yeh
July 14, 2003



STEPHEN CHIN
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